

CLAIMS

1. An integrated circuit package, comprising:
a first non-conductive substrate having a first inner surface;
a second non-conductive substrate having a second inner surface;
a die disposed between said first and second inner surfaces, said die having a first thickness; and

a leadframe including a member having a proximal end and a distal end, said proximal end having a second thickness less than said first thickness, said distal end being disposed between said first and second inner surfaces, said distal end being undulated such that said distal end has an effective thickness greater than said second thickness.

2. The package of claim 1, wherein said effective thickness is approximately equal to said first thickness.

3. The package of claim 1, wherein said distal end is one of offset formed, squirt formed, corrugated formed, and embossed formed.

4. The package of claim 1, further comprising:
at least one first conductive element attached to said first inner surface and in electrical communication with each of said distal end of said member and said die; and

at least one second conductive element attached to said second inner surface and in electrical communication with each of said distal end of said member and said die.

5. The package of claim 4, wherein said at least one first conductive element comprises at least one first bonded copper element, said at least one second conductive element comprising at least one second bonded copper element.

6. The package of claim 4, further comprising:
at least one first layer of conductive attachment material disposed between said at least one first conductive element and each of said distal end of said member and said die; and
at least one second layer of conductive attachment material disposed between said at least one second conductive element and each of said distal end of said member and said die.

7. A lead frame, comprising:
a body portion; and
a plurality of members extending from said body portion, each said member having a proximal end and a distal end, said proximal end having a first thickness, said distal end being undulated such that said distal end has an effective thickness greater than said first thickness.

8. The lead frame of claim 7, wherein said distal end is offset formed.

9. The lead frame of claim 7, wherein said distal end is corrugated formed.

10. The lead frame of claim 7, wherein said distal end is squirt formed.

11. The lead frame of claim 7, wherein said distal end is embossed formed.

12. The lead frame of claim 7, wherein each of said members is bent at an angle of approximately 90° such that said distal ends of said members extend in a direction substantially perpendicular to said body.

13. The lead frame of claim 7, wherein said plurality of members define a plane, each of said members being nonlinear in a direction within said plane.

14. A method of manufacturing a lead frame, comprising:
forming a body portion and a plurality of members extending from said body portion, each of said members having a proximal end and a distal end; and
forming an undulation in each of said distal ends.

15. The method of claim 14, wherein said forming step includes providing each of said distal ends with an effective height substantially matching a second thickness of a die in an integrated circuit package in which said distal ends are to be inserted.

16. The method of claim 14, wherein both of said forming steps is performed with a progressive die.

17. The method of claim 14, wherein said distal end is one of offset formed, squirt formed, corrugated formed, and embossed formed.

18. The method of claim 14, comprising the further step of bending each of said members at an angle of approximately 90° such that said distal ends of said members extend in a direction substantially perpendicular to said body.

19. The method of claim 14, wherein said plurality of members define a plane, each of said members being nonlinear in a direction within said plane.

20. The method of claim 14, wherein said step of forming an undulation includes punching each of said distal ends.